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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,674	06/18/2001	Thomas J. Nosella	CISCP185	1033

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BEYER WEAVER & THOMAS LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER	
HO, DUC CHI	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/883,674	NOSELLA ET AL.	
	Examiner	Art Unit	
	Duc C. Ho	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35, and 37-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Objections

1. Claims 1-7 are objected to because of the following informalities: Regarding claim 1, the term "ARP" on line 3 should not be presented as an abbreviation at its first time mentioned.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-6, 8-15, 17-24, 26-35, and 37-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (US 5,473,599), hereinafter referred to as Li, in view of Vepa et al. (US 6,512,774), hereinafter referred to as Vepa.

Regarding claim 8, Li discloses standby router protocol. Various protocols have been devised to allow a host to choose among routers in a network, i.e., the Address Resolution

Protocol (ARP) is used so that a router may give a host its address in response to the host's request for an address outside of its local LAN, see col. 1-line 25 to col. 2-line 8.

receiving an ARP message from a host (the router R4-fig. 2b is assumed to receive an ARP message from the host H2, see col. 1-line 25 to col. 2-line 8, and col. 6-line 40 to col. 7-line 60);

replying to the ARP message with a reply message identifying the addressee gateway device (the router R4-fig. 2b is assumed to reply to the ARP message with a response identifying its MAC layer and network layer (e.g.,IP) address, see col. 6, lines 46-49, and col. 7, lines 51-54);

determining that one of the available gateway devices has failed (if the router R4-fig. 2b failed by not sending "hello" message, see col. 8-line 46 to col. 9-line 26); *and*

taking over responsibility for gateway services of the failed gateway device (a standby router in the router group 126-fig. 2b will send a "coup" message to the active router R4, and telling the active router that it wishes to take over as the active router).

Li does not discloses expressly a step of *basing on load balancing considerations, selecting a gateway device,* from among a group of available gateway devices available for servicing hosts on the network segment.

Vepa discloses fail over with multiple network interface cards. According to Vepa the Dynamic access software element 330-fig. 5 executes a load balancing scheme to select one of the NIC's to be used to transmit the outgoing data packet, see fig. 7A, and col. 8-lines 28-42, and col. 9 lines 28-45.

One skill in the art would recognize the advantage of employing a load-balancing scheme such that if a primary gateway or a NIC device fails, a secondary or stand by device takes over for transmitting the outgoing data packet as a result of the executed load-balancing scheme.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Li with Vepa.

The motivation for doing so would have been to provide fault tolerance and fail over support based on a load-balancing scheme in order to increase a reliability of performance in an active network.

Therefore, it would have been obvious to combine Li with Vepa to obtain the invention as specified in claim 8.

Regarding claim 9, in Li the implemented routers group 126-fig. 2b are the layer 3 device.

Claims 1, 10, 17, 26, 32, 34, 37 have similar limitations as claim 8. Therefore, they are rejected under Li-Vepa for the same reasons set forth in the rejection of claim 8.

Regarding claim 19, please see the rejection of claim 8. In Li, a master gateway device is a router device, i.e., the router R1, among the routers in the group 124, 126-fig. 2b, wherein the router R1 has similar configuration as that of the router 10, col. 5-27 to col. 6-line 8.

The router 10 includes a memory 61-fig. 1. The memory could be configured to hold a shared address shared by the master gateway device and the slave gateway device, and a unique address for the master gateway device, and a unique address for the slave gateway device. The network interfaces 12, and 68-fig. 1, each could be configured to send and receive network traffic including an ARP message from a host addressed to the shared address. The processor 63-fig. 1 could be configured to select one of the master and slave devices to act as the addressee gateway device for the host, based on the executed load-balancing result of Vepa.

Further, the processor 63 is used to reply to the ARP message with a response including the selected address gateway device, see col. 6-line 9 to col. 7-line 60.

Claims 2, 11, 18, 20, 27, 33, and 38 have similar limitations as claim 9. Therefore, they are rejected under Li-Vepa for the same reasons set forth in the rejection of claim 9.

Regarding claim 3, in Li the address shared by the routers-fig. 2b is a virtual IP address.

Claims 12, 21, 28, and 39 have similar limitations as claim 3. Therefore, they are rejected under Li-Vepa for the same reasons set forth in the rejection of claim 3.

Regarding claims 4, in Li the reply message identifies a MAC address which is a layer 2 address for a router, see col. 4, lines 33-44.

Claims 13, 22, 29, and 40 have similar limitations as claim 4. Therefore, they are rejected under Li-Vepa for the same reasons set forth in the rejection of claim 4.

Regarding claims 5, in Li the layer 2 address for a router device is a virtual (secondary) MAC address, see col. 4, lines 33-44.

Claims 14, 23, 30, and 41 have similar limitations as claim 5. Therefore, they are rejected under Li-Vepa for the same reasons set forth in the rejection of claim 5.

Regarding claim 6, in Li when the standby router detects that the active router has failed, it takes over as the active router by adopting the group's MAC and IP address, see col. 6, lines 58-62.

Claims 15, 24, 31, and 42 have similar limitations as claim 6. Therefore, they are rejected under Li-Vepa for the same reasons set forth in the rejection of claim 6.

Regarding claim 34, in Li any router in the router group 126 is capable of assuming responsibility for any addressee router device that fails.

5. Claims 7, 16, 25, and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Vepa, and further in view of Generous et al. (US 2002/0120697), hereinafter referred to as Generous.

Li and Vepa disclose all claimed limitations, except a step of determining that the failed gateway device has failed permanently.

Generous discloses a multi-channel messaging system. In Generous, failures are classified by either a hard-error (permanent) or soft-error (temporary). Different actions can be taken when encountering either hard or soft errors.

One skill in the art would recognize the advantage of classifying to determine whether a failure occurred at a device is permanent or not such that the use of "hello" message for communication to a failed device is no longer needed.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Li and Vepa with Generous.

The motivation for doing so would have been to stop providing "hello" message to a defective device which was a master device previously, and that a standby device is now assuming the role of a master device.

Therefore, it would have been obvious to combine Li and Vepa with Generous to obtain the invention as specified in claim 7.

Claims 16, 25, 43-44 have similar limitations as claim 7. Therefore, they are rejected under Li-Vepa for the same reasons set forth in the rejection of claim 7.

Response to Arguments

6. Applicant's arguments filed on 7-22-05 have been fully considered but they are not persuasive. In response to claims 1, 8, 10, 17, 26, 32, 34, and 37, Li discloses the use of Address Resolution Protocol when a router may give a host its address in response to the host's request for an address outside of its local LAN, see col.1-line 67 to col. 2-line 2. The software element 330-fig. 5 of Vepa incorporates load balancing feature for a plurality or NICs, therefore, its feature could also be applied for load balancing to a plurality of routers in Li.

Allowable Subject Matter

7. Claim 36 is allowed

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Ho whose telephone number is (571) 272-3147. The examiner can normally be reached on Monday through Friday from 7:00 am to 3:30 pm.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (571) 272-3155.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-2600.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner

Duc Ho

12-19-05